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of the results reached, leaving details for Mr. Thaxter's paper on the subject, which will soon appear in print.

The spores of *Gym. clavipes* C. & P. growing on stems of Juniperus Virginiana were sown on young plants of Amelanchier Canadensis and were followed by a luxuriant growth of *Rœstelia aurantiaca* Peck. *Gym. clavipes* was detected for the first time on Juniperus communis at Weymouth, Mass., by Mr. J. E. Humphrey, and was afterwards found on the same host in another locality by Mr. Thaxter. Cultures were also made of the foliicolous *Gymnosporangium*, which causes the well known bird-nest distortion of J. Virginiana, which is stated in my paper on "Gymnosporangia of the United States" to be a form of *G. clavipes*. The shape of the spores and their pedicels, and the fact that they sometimes germinate at both ends as in *G. clavipes*, lead me to refer the bird-nest form to that species. This view is incorrect, and the bird-nest form is rather to be referred to *G. conicum* DC., and the cultures made by Mr. Thaxter developed the æcidia of *Rœstelia cornuta* Fr. on Amelanchier, thus agreeing with Oersted's experiments. The spores of *Gym. clavariæforme* DC. on J. communis sown on *Cratægus tomentosa* were followed by *Rœstelia lacerata* Fr., also agreeing with Oersted's experiments. The cultures of spores of other species of *Gymnosporangium* are still under way and have given some interesting results already, but a full statement will appear later in Mr. Thaxter's paper.—W. G. FARLOW.

The Arillus in Asimina was described by me and figured from Sprague's drawings in the Genera Illustrata. Some botanist, I think M. Baillon, has controverted the statement, taking the view that the so-called arillus was only a false membrane, a condensation of the pulp of the pericarp around the seeds. Fresh fruits of A. grandiflora and A. pygmæa, communicated by Mr. Curtiss from Florida, clearly show the distinct and rather firm membrane, investing the seed and firmly attached at the hilum. I have not been able to study its formation and growth, which is still needful.—A. GRAY.

Gymnosporangium macropus on Pirus coronaria.—The "cedar apples" were gathered from several small trees of Juniperus Virginiana on April 12th, and before any of the gelatinous masses or "horns" upon the excrescences had made their appearance. The "apples" were placed in water on a plate in the laboratory until the spores had germinated and produced their sporidia in great abundance. On April 23d, sowings of the sporids were made upon the young leaves of the wild crab apple (Pirus coronaria).

The leaves and tips of branches sown were at once covered with sacs of cloth similar to those used in crossing and hybridizing plants. The same number of sacs were placed upon tips of twigs on which no Gymnosporangium spores had been sown.

By the method of forcing the growth of the cedar apples by keeping them moist and in a warm room, the danger of a previous inoculation of the leaves sown was avoided.

On May 12th spermagonia were found in abundance in process of formation upon the leaves in every instance where sowings had been made. On the other hand, not a sign of a fungus was observed on the unsown leaves under the sacs or on any other parts of the trees. The success of the inoculation was so complete that the leaves receiving the sporids were on May 17th almost entirely orange-colored and the affected twigs could be distinguished several feet away.

On May 17th a second series of sowings under sacs was made. Two weeks later all of these latter had developed the fungus, while the leaves of the first sowing were becoming covered with dark dots, indicating the maturity of the spermagonia. After making the second sowings under sacs a quantity of the Gymnosporangium sporidia was scattered over the leaves of certain branches and left uncovered. At the time of writing these branches are easily distinguished by the prevailing orange-color of their affected leaves. The natural sowings are now beginning to develop as small orange spots, but they as yet are few in number and behind those from the artificial sowings. In case of the inoculations that have been made through the agency of the wind the spots are small, circular, and appear as the growth of one spore; while in the artificial sowings the blotches are very irregular and far more vigorous. The leaves first inoculated are now thickening in patches, preparatory to the formation of the rœstelia state of the fungus. It remains to determine the species of the rœstelia and carry the spores back to the cedar and determine if they will produce the teleutospores of the fungus direct, or whether a uredo state is necessary to complete the cycle of forms in this polymorphic fungus.

Sowings have been made upon the cultivated apple and other species of Pirus, as well as upon the genus Cratægus, but these results are less pronounced and not ready to be set down.—BYRON D. HALSTED, *Iowa Agricultural College, June 15.*

EDITORIAL.

THE *Popular Science Monthly* for June contains a portrait and biographical sketch of the late Dr. George Engelmann. The author is anonymous, but can hardly have been a botanist or he would not be so ignorant of the true authorship of the classic "*Plantæ Fendlerianæ*" as to say—

"In 1849 Dr. Engelmann published in the 'Memoranda [*sic*] of the American Academy of Arts and Sciences' the 'Plantæ Fendlerianæ.'"

He infelicitously adds, regarding Fendler—

"Fendler and he [Engelmann] had become acquainted on a governmental expedition to the Rocky Mountains, to which the former was attached as engineer. * * * He traveled in the Rocky Mo ntains, California, Mexico, Central America and Brazil."

Fendler did not become acquainted with Engelmann in this way; he was never attached officially to any governmental expedition; he was not an engineer; and he traveled neither in the Rocky Mountains, nor California, nor Mexico, nor Central America, nor Brazil! The writer of the paragraph can find correct information on these points in Fendler's autobiography published in this journal for June, 1885.

IT IS TO BE hoped that all botanists are taking note of the good things being provided for them at Buffalo. This meeting of the Botanical Club prom-